REMARKS

By the present amendment, independent claims 1 and 5 have been amended to obviate the examiner's objections thereto and/or to further clarify the concepts of the present invention. In particular, these claims have been amended to recite that the heat shield filler in the heat shield layer is lanthanum hexaboride. Entry of these amendments is respectfully requested.

In the Office Action, claims 1, 2 and 5 were rejected under 35 USC § 102(b) as being anticipated by the newly cited PCT publication to Dobler et al. In so doing, it was asserted in making the rejection that the Dobler et al patent publication teaches the entire heat shielding material as recited in the noted claims. Reconsideration of this rejection in view of the above claim amendments and the following comments is requested.

It is submitted that the Dobler et al publication does not teach or suggest the heat shielding material as now defined by amended claims 1, 2 and 5. A comparison between the heat shield material as presently claimed and the compositions disclosed in the Dobler et al publication is a follows:

(1) The composition of the Dobler et al publication contains a thermoplastic resin, such as polycarbonate or polypropylene, and oxide particles, such as ITO, ATO, FTO or AZO, which oxide particles have been surface-modified. In this regard, attention is directed to claim 1; col. 5, lines 31-40; and col. 3, line 62 to col. 4, line 17 of the cited Dobler et al publication.

While the Dobler et al publication apparently teaches that oxide particles ,such as ITO, ATO, FTO, or AZO, can be used as a heat shield filler, the publication does not teach or suggest the use of lanthanum hexaboride as a heat shield filler as presently claimed. Consequently, the composition of the Dobler et al publication differs from the heat shielding material according to the claimed invention in this important respect.

Additionally, with regard to the use of lanthanum hexaboride as a heat shield filler, the specification of the present application states on page 8, line 16 to page 9, line 7 that:

> "As shown in Fig. 1, the transmittance spectrum of each film having the LaB_6 fine particles dispersed therein is large in the light transmittance in a visible light region and has a transmittance peak in the vicinity of a wavelength of 550 nm. Since this transmittance peak is identical to the wavelength to which the eye is most highly sensitive, it is advantageous in holding brightness in the facility. Further, a large absorption is present in the vicinity of a wavelength of 1000 nm, and it is thus possible to screen near-infrared light efficiently, thereby shielding the sunlight-induced heat energy efficiently. In addition, LaB_6's absorption of ultraviolet light is so small that it does not exert any detrimental effects on pollinating activities by insects and the growth of plants. Meanwhile, the transmittance of ultraviolet light at a wavelength of 290 to 320 nm can be controlled by adjusting the amount of LaB_6 fine particles to be added to the substrate resin."

That is, the heat shielding material according to the presently claimed invention is advantageous in that it does not adversely affect the pollinating activities of insects and/or the growth of plants. The reason is that the absorption of ultraviolet light by LaB_6 can be held at a small level. Thus, the failure of the cited publication to teach a heat shield material according to the claimed invention which includes lanthanum hexaboride as a heat shield filler is of considerable significance.

(2) Attention is directed to the composition provided in Example 3 of the Dobler et al publication, wherein a polycarbonate resin and surface-modified ITO particles were used. The contents of the ITO particles in the polycarbonate resin (estimated at 1.2 in specific gravity) can be calculated at 19 g/m^2 (corresponding to 0.8 wt% of ITO) and 36 g/m^2 (corresponding to 1.5 wt% of ITO). Therefore, the heat shield filler is added in a larger amount than the case with the heat shield material of the claimed invention wherein the content of lanthanum hexaboride is in the range of 0.01 to 1 g/m^2. Consequently, the compositions of the Dobler et al publication differ from the heat shield material of the presently claimed invention because the former requires that the heat shield filler be added in relatively large amounts.

The above conclusions relative to the contents of the compositions of the cited Dobler et al publication are explained below in detail. In Example 3, specimens of 60 mm × 60 mm × 2 mm in size were produced by using a polycarbonate resin, which specimens had ITO particles added in amounts of 0.8 wt% and 1.5 wt%, respectively. The content of the ITO particles in the polycarbonate resin specimen where the ITO particles were in the amount of 0.8 wt% is calculated in the following manner:

Content of ITO particles = (60 mm × 60 mm × 2 mm) × 1.2 × 0.008 = 69.12 mg = 0.07 g

That is, the polycarbonate resin specimen of 60 mm × 60 mm × 2 mm in size contains the ITO particles in the amount of 0.07 g.

The content of ITO particles in a polycarbonate resin specimen of 10^3 mm × 10^3 mm × 2 mm in size is proportionally calculated in the following manner:

Content of ITO particles = 0.07 × (10^3 mm × 10^3 mm × 2 mm) ÷ (60 mm × 60 mm × 2 mm) = 0.07 × 277.8 = 19 g/m^2.

In similar fashion, the content of the ITO particles in the polycarbonate resin specimen where the ITO particles were in the amount of 1.5 wt% is calculated in the following manner:

Content of ITO particles = (60 mm × 60 mm × 2 mm) × 1.2 × 0.015 = 129.6 mg = 0.13 g

That is, the polycarbonate resin specimen of 60 mm × 60 mm × 2 mm in size contains the ITO particles in the amount of 0.13 g.

The content of ITO particles in a polycarbonate resin specimen of 10^3 mm × 10^3 mm × 2 mm in size is proportionally calculated in the following manner:

Content of ITO particles = 0.13 × (10^3 mm × 10^3 mm × 2 mm) ÷ (60 mm × 60 mm × 2 mm) = 0.13 × 277.8 = 36 g/m^2.

(3) In addition to the above, the Dobler et al publication discloses at col. 3, lines 27-31 that the oxide particles used as a heat shield filler are in a quantity of up to 30 parts by weight (preferably up to 2 parts by weight) per 100 parts by weight of the thermoplastic resin. The content of ITO particles in a specimen of a polycarbonate resin (thermoplastic resin) of 10^3 mm × 10^3 mm × 2 mm in size under the above conditions is calculated in the following manner:

The weight of the polycarbonate resin of 10^3 mm × 10^3 mm × 2 mm in size is expressed by 10^3 mm × 10^3 mm × 2 mm × 1.2 (mg) = 2.4 × 10^3 (g). In the case where ITO particles were added in the maximum amount of 30 parts by weight, proportional calculation gives a content of ITO particles = 2.4 × 10^3 × 30 ÷ 10^2 = 720 g/m^2, while in the case where the ITO particles were added in the maximum amount of 2 parts by weight, proportional calculation gives a content of ITO particles = 2.4 × 10^3 × 2 ÷ 10^2 = 48 g/m^2.

From the above, it is to be particularly noted that, according to the Dobler et al publication, the heat shield filler must be added in large amounts when compared to the heat shield material of the presently claimed invention, that is, where the content of lanthanum hexaboride is in the range of 0.01 to 1 g/m^2. The compositions of the Dobler et al publication therefore differ from the heat shield material of the presently claimed invention in this significant respect.

In summary and as discussed above, the heat shielding material for an agricultural and horticultural facility according to the presently claimed invention is distinguished due to the difference of heat shield fillers used from the compositions of the Dobler et al publication and, as a consequence, the invention is not anticipated by the Dobler et al publication. Furthermore, the heat shielding material for an agricultural and horticultural facility according to the claimed invention, when in practical use, is particularly effective in eliminating any adverse environmental impact on the pollinating activities of insects and/or the growth of plants, since the absorption of ultraviolet light by LaB_6 can be minimized, and yet is significantly effective in drastically reducing the content of the heat shield filler.

For the reasons stated above, withdrawal of the rejection under 35 U.S.C. § 102(b) and allowance of claims 1, 2 and 5 as amended over the cited patent publication are respectfully requested.

In view of the foregoing, it is submitted that the subject application is now in condition for allowance and early notice to that effect is earnestly solicited.

In the event this paper is not timely filed, the undersigned hereby petitions for an appropriate extension of time. The fee for this extension may be charged to Deposit Account No. 01-2340, along with any other additional fees which may be required with respect to this paper.

Respectfully submitted,

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